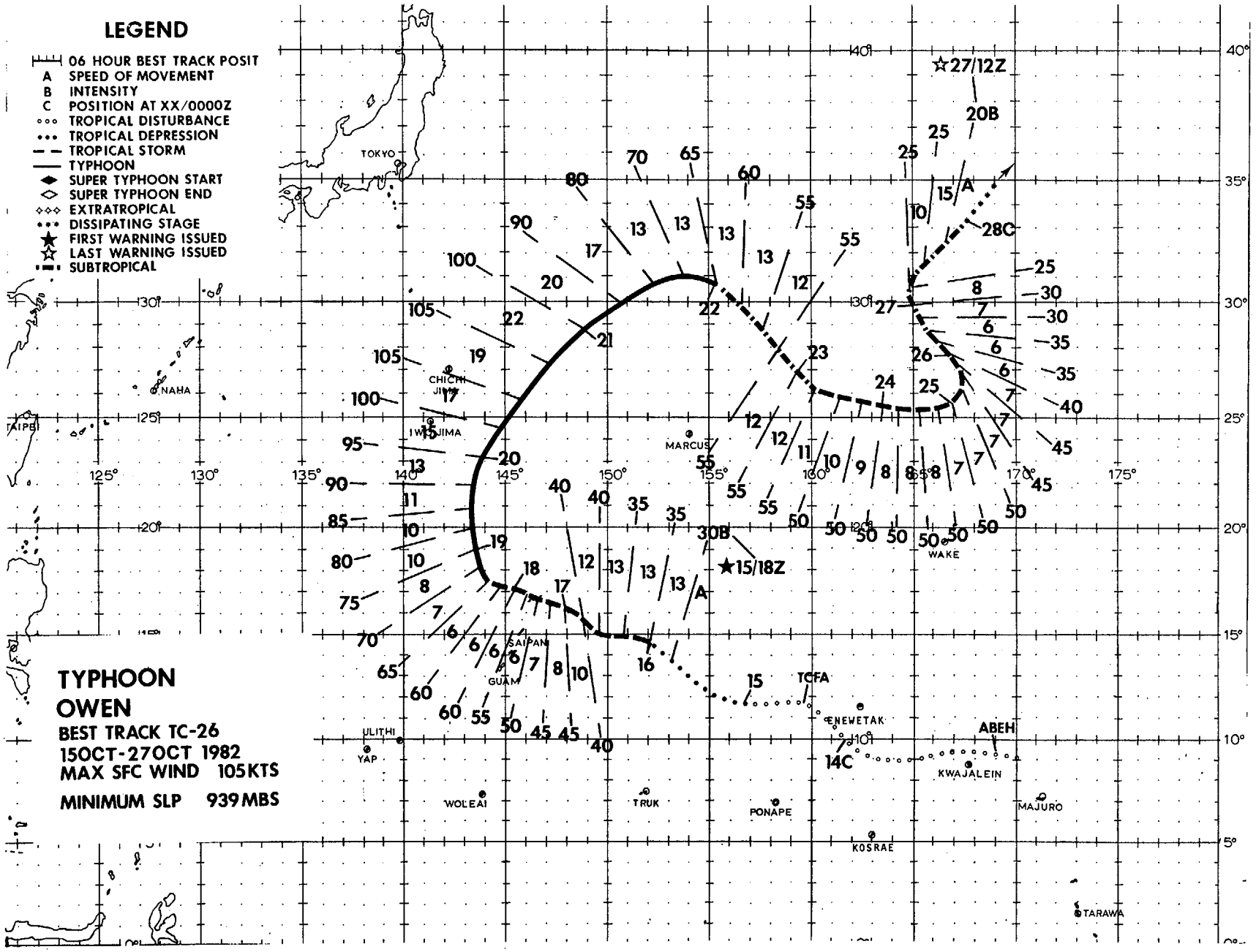
LEGEND
06 HOUR BEST TRACK POSIT
A SPEED OF MOVEMENT
B INTENSITY
C POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
DISSIPATING STAGE
FIRST WARNING ISSUED
LAST WARNING ISSUED
SUBTROPICAL
TYPHOON
OWEN
BEST TRACK TC-26
150CT-270CT 1982
MAX SFC WIND 105KTS
MINIMUM SLP 939MBS
☆27/12Z
20B
28C
30B
★15/18Z
14C
TCFA
TOKYO
NAHA
TAIPEI
CHICHI JIMA
IWO JIMA
MARCUS
WAKE
SAIPAN
GUAM
ULITHI
YAP
WOLEAI
TRUK
PONAPE
KOSRAE
ENEWETAK
KWAJALEIN
MAJURO
ABEH
TARAWA

Typhoon Owen culminated an active 14-week period (22 July through 27 October) during which 17 tropical cyclones reached warning status in the western North Pacific. During this period, only 10 calendar days did not have at least one tropical cyclone in warning status, with five days (26 to 30 September) the longest period without warnings. So obvious was the cessation of this period that four weeks elapsed between the final warning on Owen and the initial warning on the next tropical cyclone, Pamela (27).

Owen developed from a disturbance which was first detected on 13 October east of Kwajalein Atoll. On 14 October increased convective organization became evident on satellite imagery and, at 141200Z, a Tropical Cyclone Formation Alert was issued. During the subsequent 36-hour period, the disturbance slowly organized, e.g. a reconnaissance aircraft investigative mission conducted on 14 October located a weak surface circulation approximately 100 nm (185 km) east of the convective center. However, by 151800Z the convective features were indicative of a system of sufficient intensity to warrant transition to warning status, thus the initial warning was issued for Tropical Depression 26.

During the first 24 hours in warning status, positioning from aircraft and satellite data became more consistent, e.g. the 152317Z aircraft fix was located approximately 90 nm (167 km) east of the 160000Z satellite fix; by 162100Z the difference was less than 20 nm (37 km). As Figure 3-26-1 depicts, a strong upper-level tilt to the south was evident, but low-level cumulus cloud lines, detected north of the main convective mass, provided evidence of Owen's continued organization. Owen is another example of non-vertical alignment of developing tropical cyclones (Huntley and Diercks, 1981). Such systems normally become better aligned as they mature and Owen was no exception; on 18 and 19 October, the tilt became less evident and Owen responded by attaining typhoon strength at 181200Z and developing a banding-type eye on 19 October.

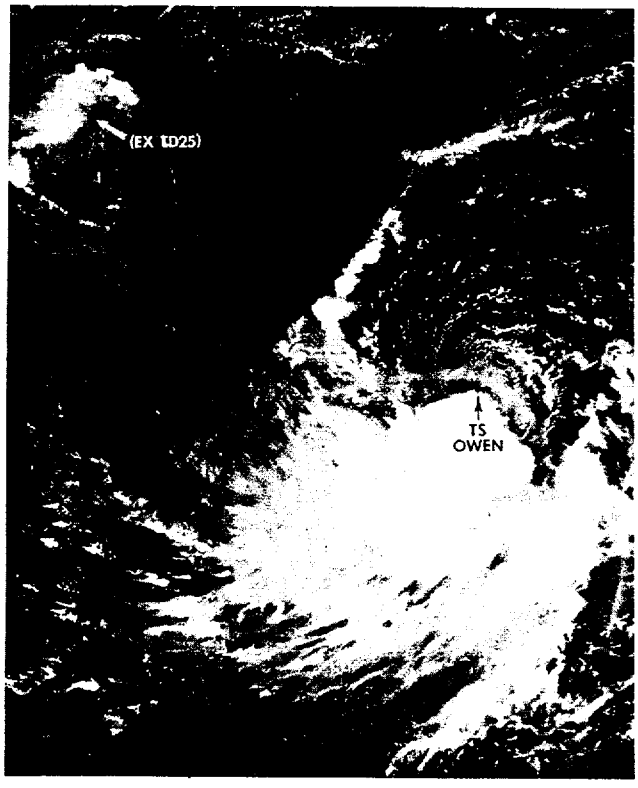

Figure 3-26-1. Low-level cumulus cloud lines can be seen entering Owen's center while the main convective features are displaced equatorward of the low-level center. Strong upper-level northeasterly winds are providing a unidirectional outflow channel toward the southwest. 170520Z October (NOAA 7 visual imagery).

While Owen was aligning in the vertical, it also began to slow its forward movement appreciably, from 13 to 6 kt (24 to 11 km/hr). Track forecasts (describing a west-northwest movement) were adequate until the system reached 17.5N 144E at 181200Z, when Owen turned sharply northward. Although most forecasts up to this point had anticipated an eventual northward movement, none fully anticipated the extent of Owen's turn on 18 October. This movement can be related to the development of a blocking high east of Japan. (Actually, the FNOC prognostic series more than adequately forecast this development, but an extension of the mid-tropospheric (500 mb) subtropical ridge north of Owen and westward to 135E was seen by forecasters as an inhibiting factor to more significant northward movement). The development of the block increased the south-to-north flow in the mid-levels, leading to an erosion of the subtropical ridge north of Owen and thus, allowed the typhoon to move northward.

From 19 to 21 October, Owen accelerated northward toward an anticipated extratropical transition, reaching a peak intensity of 105 kt (54 m/sec) (Figure 3-26-2). Speed of movement forecasts during this period were quite good and fully anticipated Owen's acceleration from 10 to 22 kt (19 to 41 km/hr). However, the track forecasts did not fair as well, primarily due to the conflicting options presented by the flow around the block. Figure 3-26-3 shows the configuration of the mid-tropospheric (500 mb) flow near the block on 20 October, as well as the various forecast tracks issued (from 190000Z to 210000Z) and Owen's eventual best track. As can be seen, forecasts 14 through 17 tended toward the east (south of the blocking high), forecasts 18 and 19 anticipated that Owen would move northward toward an occluded low near Kamchatka, and forecasts 20 through 22 seemed to split the difference. On 21 October, Owen's anticipated extratropical transition was well underway; its associated convective features

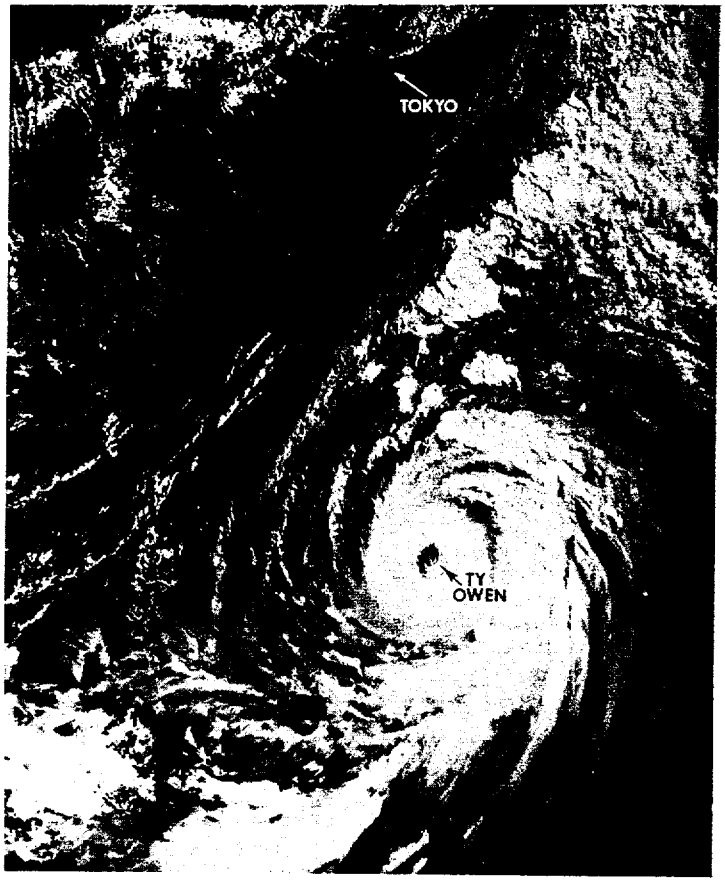

Figure 3-26-2. Typhoon Owen near maximum intensity, 710 nm (1315 km) south-southeast of Tokyo, Japan at 200443Z October (NOAA 7 visual imagery)

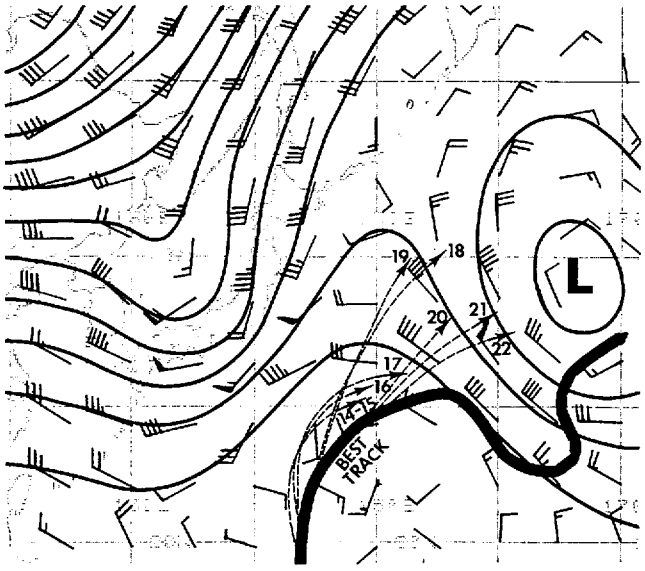

Figure 3-26-3. FNOC 500 mb analysis at 200000Z October with warnings 14 through 22 and Owen's best track superimposed. Wind speeds in knots.

were being sheared northward (away from the surface center), low-level inflow from the mid-latitudes dominated Owen's surface circulation pattern, and aircraft reports showed the band of maximum winds moving further from the center (135 nm (232 km) at 210704Z).

Numbered tropical cyclone warnings ended at 220000Z when satellite imagery indicated that Owen had transitioned to an extra-tropical low. During the next two days, extratropical gale warnings were issued by the NOCC Operations Department as the system tracked southeastward and south of the blocking high. On 23 October an increase in convective activity was noted equatorward of the system center (Figure 3-26-4) and during the next 24 hours it was closely monitored for possible reclassification as "tropical" vice "extratropical" or "sub-tropical" cyclone. The decision to redesignate Owen as a tropical cyclone occurred on 24 October when the convection began to reorganize around the system's center.

For the next 24 hours, Owen tracked eastward and maintained an estimated 50 kt (26 m/sec) intensity. Satellite fixes on 25 October began to indicate a pronounced northward track and a steady decrease in convective activity. From 25 to 27 October, the block, which had dominated the region for more than one week, began to break down and move eastward toward the International Dateline. As Owen moved north-northwestward then northeastward, it slowly weakened and dissipated in the warm sector of an advancing frontal system. The final tropical cyclone warning was issued for Owen (as Tropical Depression 26) at 271200Z some 1400 nm (2593 km) north of its point of initial detection after completing a track in excess of 3600 nm (6668 km).

Figure 3-26-4. At 240355Z October, a significant increase in convection is evident near the system's center; at the time Owen was in warning status as an extratropical low (NOAA 7 visual imagery).